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Rotary printing machine fluid transfer units

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Fig. 2

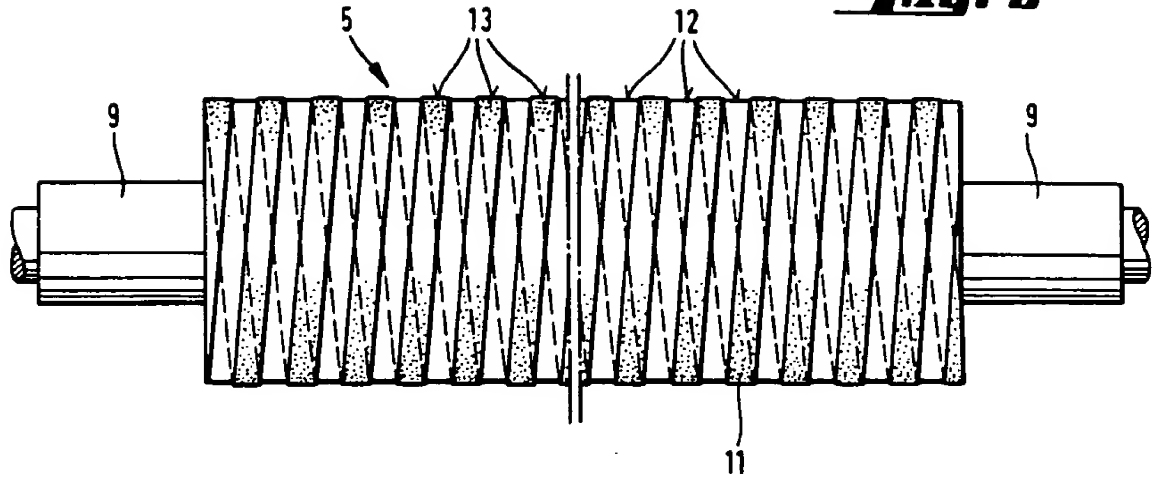
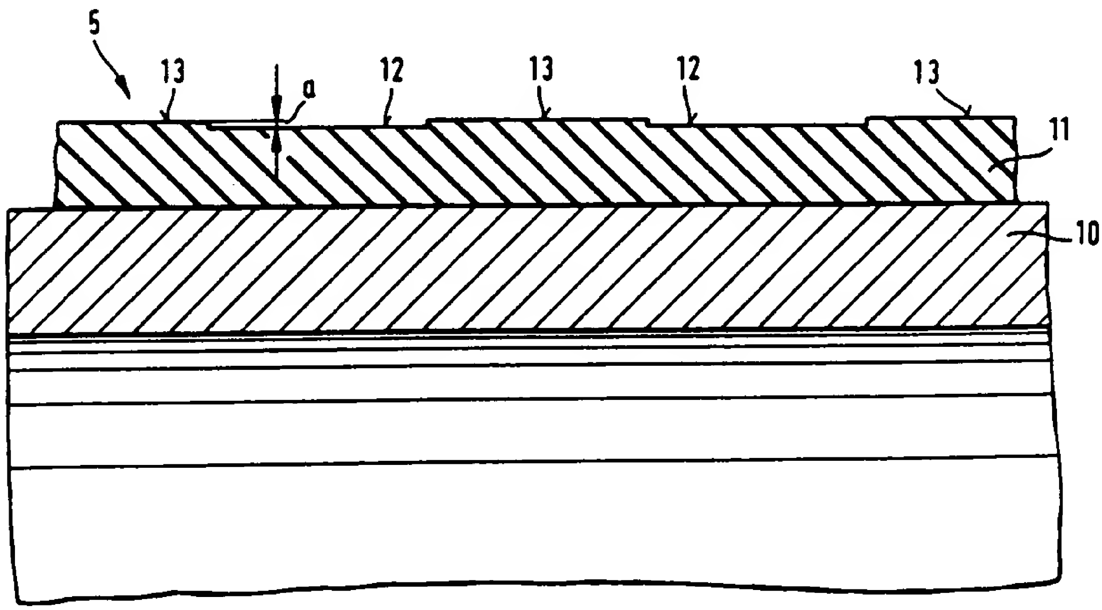


Fig. 3



these prolonged contact times entail shortened reversal times for the vibrator roller, which adversely affects the dynamic properties or running characteristics of the inking unit.

Setting out from this state of the art, it is an object of the present invention to make it possible to optimize a metering system such as has been discussed, in the sense that the transfer of maximum ink amounts shall not involve any constructional changes at the inking unit and that even ink amounts differing very greatly over the length of the roller shall be capable of being transferred without any difficulty.

According to the present invention, there is provided a rotary printing machine inking unit which utilises an ink fountain, and an ink fountain roller for metering the amount of ink to be transferred to the inking unit rollers, a vibrator roller being provided which (in use) executes an oscillating movement between the ink fountain roller and a first inking unit roller, whereby (in use) an ink stripe is transferred from the ink fountain roller on to the first inking unit roller, the first inking unit roller rotating at machine speed and the ink fountain roller being driven at a substantially lower speed of rotation, and the vibrator roller having a jacket made of elastic material whose outer cylindrical

surface of the vibrator roller, the amount of ink which is transferred is also reduced, e.g. to about half. If, however, a greater amount, e.g. a maximum amount, of ink is to be transferred to the inking unit, then additionally the grooves, with their above-mentioned 0.1 to 0.3 mm depths, will transfer ink to the first inking unit roller, so that the vibrator roller employed in the present case has the same effect as a vibrator roller whose outer cylindrical surface is ungrooved. Within the range within which one can adjust between minimum and maximum ink supply, the transition is stepless,* so that it is not necessary for the contact times to be considerably extended.

The fact that the present vibrator roller can ensure a uniform ink transfer even with an ink supply which varies very greatly, along the length of the vibrator roller, constitutes a further particularly important advantage. Thus, if, for instance, a maximum amount of ink had to be supplied to the middle region of the vibrator roller, and only minimum amounts had to be supplied to its outer regions, the use of a vibrator roller with an ungrooved outer cylindrical surface would be liable to produce an accumulation of ink in the middle region, which would tend to urge the vibrator roller, at greater speeds of rotation, away from the first inking unit roller, for example. This, in turn, by reason of the alteration in the distance between the two rollers, has the effect that the ink being transferred is reduced in the outer regions requiring minimum ink supply.

Where a maximum ink supply is needed, a prior-art roller having a grooved profile requires a

* i.e. continuously variable

One embodiment of the invention is represented in the accompanying diagrammatic drawings, in which:

Figure 1 is a side view showing a rotary printing machine inking unit according to the invention,

Figure 2 shows the vibrator roller of the unit of Figure 1, from the side, and

Figure 3 is a fragmentary axial section, on an enlarged scale, of the vibrator roller of Figure 2.

With the inking unit shown in Figure 1, a plate cylinder 1 is inked by means of a plurality of inking unit rollers 2, the ink being transferred in metered amounts from an ink fountain 3 and an ink fountain roller 4, to a first inking unit roller 6, by means of a vibrator roller 5. The vibrator roller 5 employed here is pivot-mounted in a known manner on an axle 8 by means of levers 7 provided at both ends of the axle 8, and is so driven that, for predetermined times, said vibrator roller is engaging the ink fountain roller 4, and, for certain other predetermined times, it is engaging the roller 6. The roller 6 and the subsequent inking unit rollers 2 rotate at the same circumferential speed as the plate cylinder 1, whereas the ink fountain roller 4 is driven at a considerably lower speed. The circumferential speed of the ink fountain roller 4 is adjustable, however, with respect to the circumferential speed of the inking unit rollers.

The vibrator roller 5, as shown in Figure 2, is mounted in the levers 7 by means of journals 9 provided at both ends of the axle. As Figure 3 shows, an elastic but highly wear-resistant coating 11

REFERENCE NUMBERS

1	plate cylinder
2	inking unit rollers
3	ink fountain
4	ink fountain roller
5	vibrator roller
6	roller
7	lever
8	axle
9	axle journal
10	jacket
11	coating
12	groove
13	ridge *

*As may be seen from Figures 2 and 3, this "ridge" (German "Steg") is in the nature of a fillet.

2. A unit according to claim 1, wherein the grooves are arranged on the outer cylindrical surface of the vibrator roller in a spiral configuration.

3. A unit according to claim 1, wherein the grooves are arranged on the outer cylindrical surface of the vibrator roller in a rhombic configuration.

4. A unit according to claim 1 or 2, wherein the grooves are cut into the outer cylindrical surface of the vibrator roller, and wherein the widths of these grooves are equal to the widths of the intervening ridges.

5. A unit according to claim 4, wherein the said widths are 7 to 9 mm.

6. A unit according to claim 1, substantially as described with reference to the accompanying drawings.

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1 = Stammschrift / 2 = Parallelschrift